

## Claims

- [c1] 1.A process for preparing a zeolite catalyst comprising:
- (a) first, heating a zeolite at a first temperature in the range of 350 – 450 ° C in a first flowing gas for 4–6 h;
  - (b) second, calcining the zeolite at second temperature in the range of 450 – 1000 ° C for 1 – 3 hours in a continuous flow of a second gas, wherein said second temperature is at least 100 ° C greater than said first temperature; and
  - (c) third, cooling the zeolite catalyst to a temperature of from 225 – 500 ° C.
- [c2] 2.A process according to claim 1, wherein the first flowing gas is selected from the group consisting of nitrogen and air, and the second of gas is selected from the group consisting of an inert gas and air.
- [c3] 3.A process according to claim 1, wherein the zeolite is a high-silica pentasil zeolite.
- [c4] 4.A process according to claim 3, wherein the high-silica pentasil zeolite is an H-form of ZSM-5 zeolite with a Si/Al ratio greater than 20.
- [c5] 5.A process according to claim 4, wherein the Si/Al ratio ranges from 40 to 100.
- [c6] 6.A process according to claim 1, wherein the zeolite comprises gallium, and the Si/Ga ratio is greater than 20.
- [c7] 7.A process according to claim 6, wherein the Si/Ga ratio ranges from 40 to 100.
- [c8] 8.A process according to claim 6, wherein the gallium is introduced into the zeolite during synthesis of the zeolite.
- [c9] 9.A process according to claim 6, wherein after zeolite synthesis, the zeolite is impregnated with a gallium salt, and subsequently calcined in air.
- [c10] 10.A process according to claim 1, wherein the zeolite is a zeolite H-

mordenite.

- [c11] 11.A process according to claim 1, wherein the zeolite is an isomorphously substituted pentasil.
- [c12] 12.The process according to claim 1, wherein the zeolite has a Si/Fe ratio greater than 20.
- [c13] 13.The process according to claim 12, wherein the Si/Fe ratio ranges from 40 to 100.
- [c14] 14.A process according to claim 1, wherein the zeolite comprises a binder.
- [c15] 15.A process according to claim 14, wherein the content of the binder in the catalyst ranges from 5 to 50 weight percent.
- [c16] 16.A process according to claim 15, wherein the content of the binder in the catalyst ranges from 20 to 30 weight percent.